THE PASSPORT HOUSE LETTER

A Journal of Apple II Development • March, 1993

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Test Drive

• This issue's Test Drive is a road trip of shopping for and using modems. How we landed a good deal, and how you can.

• Plus, two companion articles on understanding all of the protocols and standards and using Hayes' AT command set. PAGE 4

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New publication "II Alive" attacks InCider/A+

QUALITY COMPUTER'S new Apple II publication "II Alive" is due to be shipped soon. The mail order house has been sending a "sneak peek" edition of the new publication out to many Apple II users in the last few months, particularly InCider/A+ readers.

Several Passport House staff members have received a copy of the sneak peek edition. The copies were mailed in a paper cover asking, "Are you having trouble finding Apple II support? Not any more!," a message evidently directed to InCider/A+ readers.

In a letter inside the cover, Quality's president Joe Gleason didn't mince any words in talking about InCider/A+. The letter, which was addressed to InCider/A+ readers, asks, "Are you bored by articles that don't tell you anything you don't already know—or worse, simply get the facts wrong?"

Gleason previously stated in a II Alive press release that his company has done a great deal in financially supporting InCider. A glance at InCider certainly highlights that fact; between ten and fifteen percent of the magazine is advertisements paid for by Quality. The release also described how Quality has grown more and more dissatisfied with InCider's bent against the Apple II.

The sneak peek cover letter issued an even stronger message of Quality's dissatisfaction with InCider. On another page, Quality printed several quotations from recent InCider articles with the caption, "This is how some magazines support your Apple II...We have a better idea." The InCider clippings were examples of the magazine's down playing of the Apple II with recommendations such as, "Apple wants you to buy a Mac. If you've been putting off buying one, now may be a good time to make your move."

Just Another Company Catalog?

Gleason is quick to defend the publication as more than a company catalog. Quality's tabloid-sized catalog "Enhance," aimed at the educational market, will still be published. With II Alive, the company is seeking to make a magazine that will interest the home buyer.

It is difficult to accurately judge what can be expected of the publication based on the sneak preview alone; it is primarily an introduction and advertisement for the publication. While the cover letter stated that old copies of SoftTalk, A+, Nibble and InCider were studied as models of the new publication, we thought the magazine looked very much like recent copies of InCider/A+, but with less advertising, at least from other companies.

Quality published their company catalog on a plain paper insert bound in the sneak issues' middle. But besides advertisements appearing for products that Quality distributes, which are paid for by their developer, no other advertisements appeared in the magazine.

Interestingly, a note from a customer appeared in the sneak issue's Letters department, suggesting that Quality allow competitor's advertisements in II Alive for the sake of competition. An editorial reply stated that other mail order companies hadn't shown any interest in Quality's publication.

After II Alive establishes itself, it is unlikely that Quality will keep advertising in InCider/A+, especially after the biting criticism Gleason expressed in the sneak edition letter and press release. If that's the case, InCider's troubles would only progress. Quality is by far their biggest advertiser.

InCider's Increasing Troubles

InCider/A+ is already in a pinch. Last December, sparks were flying about a plan launched within InCider to further change the name and focus of the magazine from Apple II to entry-level

Continues inside, page 2

Interested in subscribing to the Passport House Letter?

Get a full update on what's happening in the Apple II world every month. When you subscribe to the Passport House Letter, you get — for less than the cost of a monthly long distance phone call — all this:

- Complete product reviews and comparisons in Test Drive.
- Maximum Overdrive: how you can squeeze more performance from your Apple II.
- The latest news and new product reports available.
- A regular look inside the realm of Apple II developers, in Industry People.
- You'll also see readers expressing opinions, as well as our own ideas.

All of this for just $24 per year. Join today and don't miss a thing! Info on page two.

QUESTIONS & COMMENTS

Passport House:

A friend of mine mentioned she was quite impressed with the first issue of the Passport House Letter. Am eager to see a copy myself.

Phil Shapiro,
Washington D.C.

To Our Readers:

Thousands of free introductory issues of the Passport House Letter are being sent to Apple II users in a special promotion to expand our readership. We're investing a lot of money and time in this expansion program, so we really appreciate hearing comments like the above. Word of mouth advertising is, of course, the ideal way to get people interested.

If you are a current subscriber of the Passport House Letter, we'd like to thank you for your early support for of work. And we'd like to remind you that the best thing you can do for us is recommend us to your friends.

As our readership grows, so will our coverage.

If you are not yet a subscriber, we'd like to briefly tell you about our operation. Passport House is a small, independent company designed to get to Apple II users the news they've been missing. Judging from the enthusiastic response we've been getting, it's obvious that the interest is out there.

We're journalists of Apple II development. We work to keep in contact with developers and constantly monitor telecommunications services to serve news that's really news. But news has got to be more than quick; it must be accurate; that takes research and verification.

We're making great efforts to cover all of the developers in the Apple II world. If you are an Apple II developer, we'd like to work with you. Tell us about your current lineup and upcoming projects you're working on.

Developers can assist our work by advertising to our international distribution. Users want to know about new products; our publication is one place they'll be looking first.

Our operation was designed around efficiently, and our focus is on new development. Therefore, we have priced advertising at rates that even small developers can easily afford. In addition, we're working with many developers to introduce an even larger audience to our Letter, trading use of their contacts with advertising space in our publication.

It's been a while since the Apple II community could be this excited about the future. Software developers are producing products that add new value to our machines, and hardware developers are introducing amazing new abilities.

We'll be here to cover what's going on in the Apple II world. In addition, we'll supply helpful information on using existing products to increase your productivity (and keep watch on the next generation — Avatar).

Please join us in supporting the Apple II's future.

Dan Dilger
President of Passport House

"II Alive attack" continues...

Macintosh. InCider's uncomfortable mix of Apple II and Mac coverage was not only confusing to its readership, but apparently also to its writers. Feature articles attempting to cover both Apple II and Mac resulted in comments like the suggestion that Mac users purchase (incompatible) GS/OS printer driver packages to allow use of other printers with the machine.

The plan's announcement struck the wrong chord with many of InCider/A+'s dwindling 50,000 readers, and the negative response was enough to get InCider/A+ to correct the statement and pursue greater Apple II coverage. Without Quality, InCider/A+ will certainly have a more difficult time convincing parent company IDG Communications that it has a reason to live.

A Publication With A Purpose

Gleason promises to search out and pay Apple II writers to fill the magazine with real information. It's nice to see Quality reaching out to support the Apple II in such a Medicci fashion. We expect II Alive to continue in the style of their education-oriented "Enhance" with news and features aimed at the home user.

All things considered, Quality had better make good on its promise to be more than a catalog; with a subscription fee of $19.95 for 6 bimonthly issues, II Alive is the most expensive Apple II publication available anywhere.

We at Passport House would like to wish our Quality colleagues success in their work. The new publication has the potential to bring new interest to the Apple II world. And that's always a healthy thing.

THE PASSPORT HOUSE LETTER

A Journal of Apple II Development • March, 1993

THE PASSPORT HOUSE LETTER

Each month, The Letter reports on new development, examines available products, interviews industry people and shares productive ideas. Passport House publishes The Letter on Apple II computer equipment for the benefit and enjoyment of an international readership. This publication is protected by copyright and may not be reproduced in any way without the express permission of Passport House.

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OUR OPINION

Make Use of Existing Technology

INTERNALLY, computers perform ninny-simple tasks. But the millions of the binary comparisons and flip-flops that are performed each second perform very worthwhile operations: graphics manipulation, square root computation and — my favorite — spell correction. A computer can be a very valuable tool. In the right hands, it can be used to instantly perform tasks that might take unassisted humans months or even years to complete.

The Price of Research and Development

All of that power comes at a comparably small price, especially when market competition comes into play. Watch the prices of generic brand computer systems; if you have the privilege as I do of receiving flyers and catalogs from everyone in the computer industry, you know what I'm taking about. Prices on industry standard equipment are falling like millstones.

About six years ago, I personally got poked in the eye by the changing technology scene. I bought 24, 256 x 8 K DRAMs (a total of 768 K) for my Apple IIGS, at ten dollars a piece. $240. Today, even with the recently imposed tariffs on DRAM imports, a full 1024 K of RAM can be had for $35.

In the realm of computers, the majority of manufacturers' costs by far is in their research and development. Once a product is developed, copies can usually be mass produced at relatively little cost. The profits from selling the copies justifies the millions of dollars spent on development.

When new development brings improved versions into the marketplace, the current products they replace loose their value like balloons on the loose. The hot thing that everyone wants carries a big price tag. When I bought the above mentioned memory chips, manufacturers were just realizing the market for memory chips in camcorders, VCRs and other consumer products. The price went up. Today, cheaper and denser RAM chips are available at a lower cost. Companies spent the money to develop them.

Development has increased so fast that megabit and even four megabit chips (four and sixteen times as dense as those I bought) are affordable. The people with the big pockets have already paid for the technology we can use. They're now paying for 64 and 128 megabit chip development.

This isn't a recent turn of events. In the mid-seventies, when Steve Wozniak built the original Apple II, he was using the results of development paid for by bigger companies. For a few dollars, he could buy simple parts that originally cost their developer millions of dollars in research and design. Today, new development is constantly bringing out new and better products, which consistently brings down prices on everything from microprocessors to RAM chips.

The 'Need a Megabrain-Processor' Mentality

The mainstream computer industry (pronounced "IBM compatible") insists on developing new generations of everything to progressively up the ante. But it is interesting to note that IBM compatibles are all based on a simple design. Each manufacturer tweaks the architecture of the original IBM PC developed in the early 80's, then produces mass copies of it. But there are basic flaws in the design. And these flaws lie in the elementary principles of its design.

Primarily, the whole concept behind performance in the IBM world is a fast processor, with fast data bus to boot. A report I recently read suggested that while a typical 486 has the power to provide quarter-screen video at 15 frames per second, Intel's new Pentium (586) will be able to do quarter screen video at 30 fps, the full speed of a motion picture.

This sort of number juggling is stupid. How can the educated people that design computers think that the basic design of the IBM PC will survive as long as Intel can produce a faster processor? There's a better way to do things.

The 'put in a faster processor to make a more powerful computer' mentality is evidence of an industry stuck in second gear; additional acceleration will not gain much more speed. They need to shift. They need to think bigger.

Or perhaps smaller. Rather than trying to gain performance through brute force, why not divide and conquer? In the corporate boardroom, its called delegation. In a bar fight its "ganging up". In our context, I'll use the word "specialization."

Only recently have developers tried to really exploit specialization. Some high performance clones offer graphics coprocessors, and some accelerators use multiple coprocessors to boost performance. But the basic design of IBM clones is the same as the simple, years old PC.

Exploiting Techno-Salvaging and Specialization

Doesn't it make more sense to fully exploit the technology already available? It seems very apparent that the Apple II could a benefit from a technique used in its original design: technologysalvaging.

By technology salvaging, I mean using parts that aren't necessarily state of the art, but are powerful enough, well documented and widely available. Use the world that IBM clones have built: exploit, plunder and steal its already paid for technology.

A list of items on my steal-it list: cheap but high quality VGA-type monitors; clickey Selectric-like keyboards that come in a variety of styles; mice with two buttons (use the right one as a system wide information key; click on something with it and a dialog appears telling you how it works or what it does); affordable high-density disk drives and low-cost, high-quality printers.

We're talking Apple II here, so don't use that progressive generation 80x86 megabrain. That kind of design worked well when all the microprocessor in a computer had to do was crunch simple numbers. Graphics were CGA pie charts and sound was a beeping speaker.

Today is multimedia. Graphics should be photographs inside dynamic, overlapping windows. Sound should be a 44.1 KHz background soundtrack and system wide special effects. Megabrains can't effectively do that themselves, no matter how big they are.

Pop in a handful of cheap Apple II processors in parallel. Give them each a task. Employ a graphics processor to control graphics, and use an sound processor for sound. (Bang! Its an Avatar!)

Its specialization. Doctors specialize and make more money. Ants specialize and get more done. But no one in the computer industry does large-scale specialization successfully. How about doing it with the Apple II?

THE FORUM

We've redecorated! Passport House is working to be better every day. How do you like our new look?

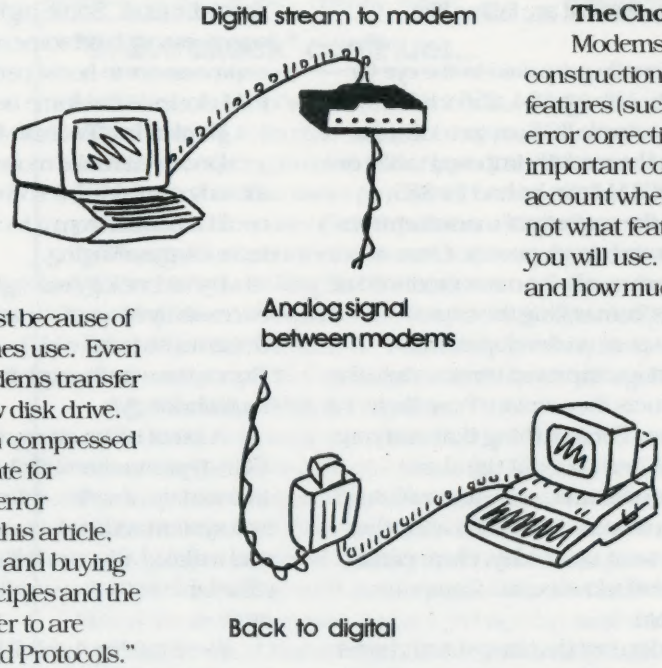
TEST DRIVE

The Telecom Road Trip

THIS ISSUE'S Test Drive focuses on the medium performance data modem market. Besides providing a buyer's look at modems in general, we'll try to clear up some of the confusion about standards and protocol and explain the technology behind telecommunications. In addition, we'll take you modem shopping with us and land a good deal. But first, a brief introduction to modems.

A Brief Introduction to Modems

The telephone lines in use today were designed to carry a voice grade signal; reliably carrying a high speed digital transmission is far beyond their capability. Modems allow computers to use standard phone lines by modulating the computer's digital data stream into an analog waveform that falls into the bandwidth phone lines can deliver. At the other end, a receiving modem demodulates the analog wave back into a digital stream.



Modems can't send data very fast because of the narrow bandwidth telephone lines use. Even state of the art, ultra high speed modems transfer data at a fraction the speed of a slow disk drive.

To speed things up, data is often compressed before being sent. And to compensate for transmission errors at high speeds, error correction techniques are used. In this article, we'll be focusing on modem features and buying decisions. Telecommunication principles and the standards and protocols that we refer to are detailed in the article "Standards and Protocols."

The Hayes Standard

Nearly every modem sold in the last ten years refers to itself as "Hayes compatible." Compatibility with the standard set by Hayes Microcomputer Products, Inc. for intelligent modems means sharing the same AT command set, S-Registers and result codes.

Hayes' "AT" command set is a simple set of codes sent directly to the modem from the computer that control various functions of the modem. Most telecommunications programs isolate the user from the AT codes. However, having a basic understanding of how the AT command set works will help in working out compatibility problems with telecommunications software and let you customize the modem to your setup. An introduction to the AT commands is presented in the article "Using the AT Command Set."

S-Registers are value containers. Think of them as the software version of DIP switches. A modem's S-Registers are factory set, but using simple commands, these settings can be changed to modify how the modem works. S-Registers control things like how fast the modem should dial phone numbers and how many times the line should ring before the modem answers the phone. A list of useful S-Registers, their settings and instructions on how to use them are explained in the section 'S-Register Commands' of the article "Using the AT Command Set."

Result codes are the modem's means of responding to commands and reporting on the progress of a call; OK, CONNECT 2400, RING, NO CARRIER, BUSY, NO ANSWER, and ERROR are common result codes. Some telecommunications programs expect result codes in a certain format. The format of the modem's result codes can be changed using an AT command. See the 'Result Code Commands' section in "Using the AT Command Set."

While all of these codes and settings may appear confusing, the Hayes standard that all modems today adhere to greatly simplifies the field of telecommunications. If you have a terminal program and the right cable, you can confidently use almost any modem available. The only uncertainty left is which modem of the vast array available is best suited for you.

The Choices Available

Modems differ in the speed, construction, price and the hardware features (such as data compression and error correction) they offer. The most important consideration to take into account when modem shopping, however, is not what features it offers but which ones you will use. First figure out what you need and how much you are prepared to spend.

If you're curious about online services, such as CompuServe, GEnie, Delphi or America OnLine, you might try starting off with a refurbished modem.

Check availability from Alltech Electronics Co., at (619) 721-7733 or Sun Remarketing, at (800/821-3221).

Refurbished 1200 baud modems can be found for as little as thirty dollars. If you lose interest, you're not sunk with a big investment. If you later choose to dig deeper, your experience will give you a better idea of what features you really need.

Used modems are a pretty safe buy. Modems don't have moving parts to wear out and most are built in a hefty metal case that would last though a nuclear holocaust.

If your interest in telecommunications is more business oriented, say sending a lot of work to and from your home computer to a remote office, it would probably be best to start off spending for high speed, data compression modems on both ends, rather than spend a lot of time experimenting with different setups.

The Market's Offerings

Unless you are using a IIc or IIc+, you have the option of using one of several standard Apple II internal models. Internal modems save desk space and often cost a little less than external ones. However, we recommend that you stick with an external modem, for several reasons.

First of all, if you ever (perish the thought) leave your

Apple II behind, you wouldn't be able to use your internal modem. And if you choose to upgrade to a better modem later, you will find a limited market left for an internal one.

External modems feature status lights that constantly report what is going on. And because they're standard equipment, you'll have more choices on the market and an easier time finding help if you have a problem. With the benefits of an external model, there aren't many reasons to give up a slot in your II and create more component killing heat inside.

Feature Specifics

Don't pay for features you don't need. Paying a premium for MNP 5 or V.42 (both are data compression systems) is silly if you're only using CompuServe or GEnie, as neither service supports the features.

A better deal, if you plan to spend a great deal of time online, is a faster modem. At 9600 baud, you will have to pay a premium surcharge, but you can get more done in less time.

Note however, that in real world conditions, 9600 baud modems will not really four times as fast as 2400 baud; for more information, see the section 'Real World Speed' in the article "Standards and Protocol."

For many Apple II users, a standard 2400 baud modem will be enough. Thoughtfully consider if 9600 baud or greater is worth it for you. And on the subject of price, make sure that you're looking in the right place. Don't go to a dealer, pick up a great (big) clone magazine:

ComputerShopper.

Look in the advertiser index for external modem listings. Have in mind what you want and how much you'll willing to pay. Then compare prices between at least four different companies (with 800 numbers).

With what you find out, reconsider what you really want and how much you really want to pay. Remember that, whenever you buy from a mail order company, you should follow the guidelines for mail order purchases the magazine prints, such as paying with a credit card, if possible.

Although IBM/mass market mail order isn't the best source for everything, if you're modem shopping for your Apple II, you'll get fewer problems and better service with a big mail order house.

Our Shopping Trip

We compared prices and service on several modems advertised in several places. We choose a P.C. Logic 2400 baud modem offering MNP 5, V.42 error correction and V.42bis data compression.

The modem came with offers from CompuServe and GEnie and a copy of QuickLink II for IBM users. The total package cost $79.95.

That's considerably less than the cost of most plain jane 2400 baud modems; similarly equipped modems were offered (mail order, not retail) from $129 up to $484!

Our P.C. Logic modem replaced a Hayes SmartModem plugged into an Apple IIGS. Booting AppleWorks GS, we changed the speed setting to match the P.C. Logic and tried logging onto the GEnie information service. After several unsuccessful attempts to connect properly using AWGS' autodialer, we contacted GEnie customer service. With their suggestions and a brief look at the modem's manual, we were able to dial manually and connect with GEnie using MNP 4 data correction. The whole operation was easy and stress free. And with the money we saved, we could order the modem rush delivery.

We still haven't been able to get AWGS to autodial with the modem, but we can't get it to do basic Y-Modem transfers either, so we're not blaming the modem.

Recommendations

Telecommunications has long been considered a bugaboo by many computer enthusiasts. But with the information provide here, anyone should feel confident about dabbling into the exciting world of online communications.

If you've been waiting to get your feet wet, don't hold back. At the same time however, take some time to look around and find a good deal first. It's easy to get soaked.

Using the AT Command Set

With Hayes, AT stands for "Attention!" When a modem detects receipt of the AT prefix string, it watches for additional commands to follow. The speed and the character format the computer uses to send the AT prefix to the modem tells the modem the speed and format it should use to respond to commands, as well as the speed it should use to attempt a connection.

AT Commands make up two sets. The basic set established by Hayes uses individual letters generally followed by a value. The industry extended set uses &, \, %, " and - characters to precede the command. Commands can be sent in strings of up to 40 characters; strings begin with AT and end with a return, like this:

AT E1 V1 Q0 X4 &W0 <return>

The following is a list of useful AT commands. Many other technical commands exist but are not included in this list.

AT commands can be sent from the command line of a telecom package — or directly from a AppleSoft prompt after typing PR#2 to talk to the modem.

Commands can be sent alone or in a string of up to 40 characters, with or without spacing, but they are always preceded by AT.

Phone Line Commands

A Answer; instructs the modem "pick up the phone" and attempt conversation with a calling remote modem.

DPn Rotary pulse dial phone number n; and:

DTn Touch tone Dial n. These two commands are unique in that they can not be used in a string with other commands.

When tone dialing, the number may include modifier characters, such as a comma to create a pause, W to wait for a second dial tone, ! to create a hook flash (like those used by some PBX's or phone companies to gain access to special system features) and the # and * keys, which create tones like the keys of a touch tone phone.

For example, to get the modem to dial 9, wait for second dial tone and dial 296-6502 on a regular touch tone phone,

Standards and Protocol

MODEMS WORK for the computer as servants, not slaves; they have their own dedicated microprocessor. Because of this, modems are really computers themselves. To differentiate between the two, modems are referred to as "data communications equipment," or "data sets," while the computers is described as "data terminal equipment."

The notations 'DTE' (the computer) and 'DCE' (modem) are used in describing the physical connections between modem and computer on both ends. As is illustrated to the right, both sides of the telecommunications link work in symmetry.

The DTE to DCE Link

Each DTE communicates with its modem using an electrical standard typically referred to as "RS 232-C", or more accurately "EIA 232-D," as it has long since become an Electronics Industries Association accepted standard (EIA) rather than a recommended standard (RS) and the EIA has upgraded the version to "D."

This standard defines what signals appear on which wires. Most external modems use DB-25 connectors, except for the Apple variety, which use the IIGS type MiniDIN 8-pin connectors. The DB-25 connector allows for a lot of wires, although most of the wires specified by EIA 232-D are not necessary for basic telecommunications.

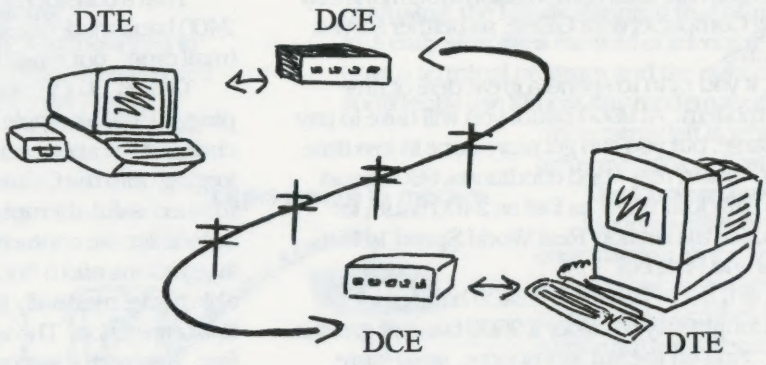
Here's what they do:

Electrical grounds are provided on pin 1, for electrical protection and 7, for signal reference. The signal reference ground is always needed.

Data signals are transmitted and received using pin 2 (transmit data) and 3 (receive data). Both are always used.

Handshaking signals are used to ensure that both the DTE and DCE are ready before any information is transmitted, and for flow control during the transfer of data. Pins 4, 5, 6, 8, 20 and 22 are all handshake signals; their use is optional and depends on the application.

The DTE to DCE Link



Timing signals control the rate at which data is sent and received across the interface when using synchronous transmission and are located on pins 15, 17 and 24. Apple II's don't make use of synchronous transmissions between computer and modem (more on synchronous transmission later).

The pins your Apple II actually uses depend on what model you have. Only a II equipped with a Super Serial Card has the complete wiring needed for hardware handshaking.

type this:

ATDT 9 W 296 6502 <return>.

H Hang up the phone.

&Zn=x Store phone number x (up to 30 characters) in location n (0-3).

Sn Use phone number stored at location n (by &Z command). For example, to tone dial number 2, type:

ATDT S2 <return>.

A/ Repeat last command; most useful as a redial function; the only command that doesn't require the AT prefix

Speaker Commands

Ln Speaker level; L0 to L3 set speaker progressively higher

Mn Speaker control; M0 speaker silent; M1 speaker on during dialing, silent after connection is made; M2 speaker always on; M3 speaker silent during dialing, on during ring, off after connection is made.

Result Code Commands

Qn Result Code Display. Q0 tells modem to return result codes to computer; Q1 disables result codes (some term programs don't like to get result codes); Q2 enable result codes only when originating call.

Vn Result Code Format. V0 displays result as code numbers (some term programs require this); V1 displays result codes as English words

Xn Normal/ Extended Result Code. X0 basic set; X1 extended; X2 extended + dial tone; X3 extended + busy signal; X4 extended + dial tone and busy signal; Low setting may prevent the modem from correctly responding to a busy signal or dial tone.

En Echo; E0 turns screen echo off, E1 turns echo on.

Reset Commands

The current settings of S-Registers and command options are stored in two banks of non-voliatle memory, or NV-RAM. These commands are used manipulate settings in NV-RAM:

&F Reset to factory values stored in ROM

&Wn Save current settings to NV-RAM bank n (0 or 1)

Z(n) Reset to user values (stored in NV-RAM bank n)

To reset NV-RAM bank #0 to the original factory settings, type:

AT &F &W0 <return>

S-Register Commands

Sr=n Sets the value of S-Register r to n.

Sr? Returns the current value of S-Register r.

Example: to set register S0 to answer on the third ring, type:

AT S0=3 <return>.

After it's set, typing:

AT S0? <return>

would return: "3."

Some S-Registers you can set:

S0 Rings necessary before auto answer; 0 = auto answer off
S1 Ring occurances; auto set
S2 ASCII of escape sequence character; (1-127)
S3 ASCII of return character
S4 ASCII of line feed character
S6 Delay before dial; 2-7 sec.
S7 Answer wait before hang up
S8 Comma pause in dial string
S9 Carrier detect response time
S11 Touch Tone dial speed
S30 Inactivity before auto hang
S70 Number of retransmit tries

The IIGS and the IIc (and IIc+) use different ports but both provide only minimal support for robust hardware handshaking. This limitation is not very significant, as the ports have no problem transferring data at 19,200 baud, plenty fast enough to allow use of a very fast modem.

The Long Distance Connection

Making the connection from DTE to DCE is easy; just connect the two with the right cable and the software you use does all of the work. What is done on a low level inside the computer is of little importance to the end user. Having made that connection, it is necessary to link modem to modem. In this connection, the wiring is even easier (modems plug in like a phone) but the protocols involved between the two modems are more complicated.

The two modems must initially agree on what protocols they will use. You don't have to know a lot about protocols because the modem handles them itself; the appropriate connection protocol is automatically used when a connection is made. The information that follows is a brief overview of protocols, both software and hardware, that are used to make fast, effective and error free transmissions.

Software Protocols

Software protocols such as Kermit, X-Modem, Y-Modem, Y-Modem/G and Z-Modem allow for a reliable transmission of files. These transmission standards send files or batches of files along with additional bits that ensure that what is sent is identical to what is received.

X-Modem, for example, sends a file in small packets, with an checksum figure based on the data in the packet. The receiving software tallies its own checksum and notifies the sending computer if the original checksum matches the figure based on the received data.

As an analogy, think of a company receiving a large order in multiple shipments. Each partial shipment contains a packing order. If anything in an individual shipment gets lost in transit, the information on the packing orders would identify the package that's damaged. To correct the problem, only the errant shipment itself would need to be resent.

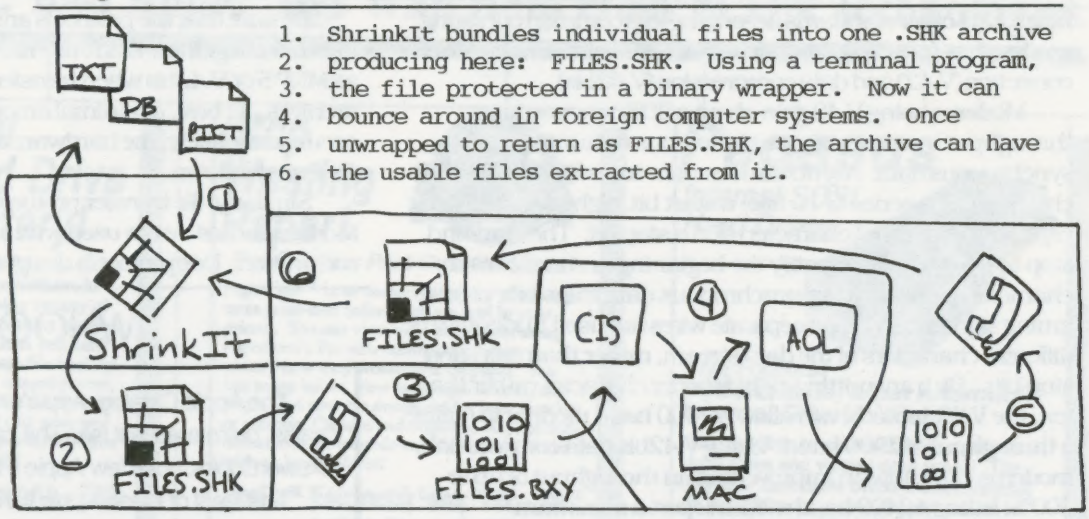
Other error correction software protocols work similarly. Y-Modem uses bigger packets and can be used to send multiple files in one operation. Z-Modem doesn't stop and check if individual packets have arrived safely. Because it continues until a real problem is identified, it's much more efficient.

Software data compression is usually performed by software separate from the communications software. If you have a 8-bit II, make sure you have ShrinkIt 3.4. Apple IIGS users should have ShrinkIt GS 1.1, commonly called "GSHK." Both were written by Andy Nicholas as freeware and are widely available.

These programs take the files you plan to send and mathematically compress them into Apple II NuFX archival libraries, identified with a .SHK suffix. Archival libraries, or archives, are single files that contain the data of multiple files strung end to end. Sending an archive is much more efficient than sending individual files.

Archives are usually placed in a Binary II wrapper by a telecom program before being sent. NuFX Archives with this wrapper are identified with a .BXY suffix. The wrapper packages the file system specific data (used by ProDOS to identify the file's type, aux. type and attributes) within the file itself. This allows the file to be stored and copied by foreign computers as a generic binary file, without losing what makes it identifiable by an Apple II.

Using Software Data Compression in Telecommunications



1. ShrinkIt bundles individual files into one .SHK archive
2. producing here: FILES.SHK. Using a terminal program,
3. the file protected in a binary wrapper. Now it can
4. bounce around in foreign computer systems. Once
5. unwrapped to return as FILES.SHK, the archive can have
6. the usable files extracted from it.

When a .BXY file is received by an Apple II, the telecommunications software generally removes the Binary II wrapper automatically, leaving the .SHK archive. Using ShrinkIt, the .SHK (or selected files within the .SHK) can be decompressed into usable files. ShrinkIt also allows users to open archival library formats from other computers, like .SIT archives from the Macintosh and .ZOO and .ARC archives, used by IBM systems.

Hardware Standards

Many modems now include application specific hardware designed to perform error correction and data compression both transparently and more efficiently than software can. However, hardware protocols only work if the modems on both ends support the feature.

The Microcom Networking Protocol is one of the oldest standards of hardware error correction and data compression. Most modems supporting MNP support at least Class 2 operation. Class 2 is a byte-oriented exchange. Its error correction gobbles up about 16% of the modem's speed, so a 2400 baud modem under MNP 2 will sport an error-free throughput of about 2000 baud.

MNP 3 does something different. While the computer continues to send data asynchronously to the modem, the modem transfers synchronous data across the phone to the remote modem. Its synchronous transmission results in efficiency of about 108%; a 2400 baud modem with MNP 3 can reach a throughput of 2600 baud.

MNP 4 uses adaptive package sizing and data optimization to increase data efficiency with relatively few errors. With an efficiency of 120%, 2400 baud modems using MNP 4 can reach 2900 baud.

MNP 5 adds data compression. While the amount of

improvement varies with the redundancy of the data stream, MNP 5 can improve efficiency up to 200%, allowing a 2400 baud modem throughput of 4800 baud.

While MNP is a common correction/compression standard in the United States and Canada, CCITT, the international telephone and telegraphy standards committee, has set international standards that improve on them. CCITT standards are expressed as a V dot number sometimes followed by "bis," meaning a secondary revision or "ter," a third revision.

CCITT has set communication standards for modems operating at 300 baud (V.21), 1200 baud (V.22), 2400 baud (V.22bis), 9600 baud (V.32) and 14400 baud (V.32bis). Besides numerous other standards describing less common operating modes, there are CCITT standards for speed independent error correction (V.42) and data compression (V.42bis).

Modems using V.42 gain about a 20% increase in throughput by converting asynchronous data into synchronous data. Asynchronous data transfers send each character as a series of 10 bits: a start bit, eight data bits (that represent the actual character) and a stop bit. The start and stop bits are used to identify the beginning and end of each character as it is sent. In synchronous data transfers, precise timing signals carried on separate wires are used to identify the different characters of the data stream, rather than start and stop bits. By transmitting eight bits per character rather than ten, the V.42 protocol can allow a 2400 baud modem to realize a throughput of 2900 baud. Using V.42bis data compression, modems can show an improvement in throughput of up to 400%, letting a 2400 baud modem sport a maximum throughput of 9600 baud.

Real World Speed

All of the improvements in throughput here referred to are based on ideal circumstances. In the real world, even the rated speed of the modem represents only its top speed.

For this reason, a 9600 baud modem, although rated at four times the speed of a 2400 baud model, will not under real conditions consistently operate four times faster. In the case of a poor connection, it may even be slower, because of having to deal with numerous transmission errors.

Keep in mind as well that, while data compression schemes may promise as much as a four fold increase in data ,throughputthey are actually making a reduction of the file's mathematical redundancy. If the data it is processing is not redundant, it can't compress it.

As a rule of thumb, the more readable information is to people, the more redundant it is. ASCII text is highly compressible, binary files are less and compressed files, such as .SHK archives, offer little or no compression.

And note as well that, while performing a transfer using a protocol like X-Modem—where the transmission is halted several times each second to compare error checksums—the maximum throughput of the modem is obviously not being fully exploited.

As an analogy: consider a road plagued with potholes and littered with crosswalks and stop signs; even if the posted speed limit is 55 MPH, the speed of drivers on the road will be considerably lower. The figure posted on the sign is only an upper limit, not an indication of the average performance one could expect under real world conditions.

Protocol Clashes

Be sure that the protocols and standards you are using are suited together. Don't use hardware compression, such as MNP 5 or V.42bis when transferring already compressed archives. At best, a minimal amount of compression will occur; more likely, the hardware compression will slow the file transfer down.

Similarly, file transfer protocols such as X-Modem and Y-Modem should not be used with a V.42bis, V.42 or MNP connection. Use protocols designed for these error-free

WHOOPS!

The Apple Catalog, Apple's new foray into direct mail sales, premiered last fall. The catalog focused on the new PowerBooks, but a few Apple II things were included.

The least of these Apple II things was Apple Access II, version 1.3.1, a communication package Apple produced years ago for the Apple IIe, listing for $75.

The product description of Apple Access II causes us to question the communication between Apple's technical people and their sales people.

Apple Access II is credited to allow easy access to several electronic services, including The Source, a feat which would require institutional resurrection, and AppleLink. In regard to AppleLink, we wonder: are they thinking of the real AppleLink, as in: "You can't access AppleLink with Apple Access II," or AppleLink Personal Edition, which has been America Online since Apple sold their holdings in the service years ago?

On other subjects, the catalog is more accurate, and its prices are fairly competitive, although at $79.95, we wouldn't recommend Apple Access II. To get a copy write:

The Apple Catalog
One Apple Plaza
P.O. Box 9001
Clearwater, FL 34618-9001

Getting Online

America Online

America Online, started as AppleLink, Personal Edition, a joint venture of Apple and Quantum Computer Services. It started off as an Apple only service. (Actually, the Apple II part was finished months before Mac users could get on.) Apple later left, and took their name with them. AOL now supports IBM.

To get on AOL, you'll need special software. While both the Mac and Windows versions sport a friendly graphic interface, the Apple II version, which works with both the IIe/IIc and the IIGS, uses a text based environment. On the IIGS, the software opens up with graphics before dumping you into the text editor. Most of the IIGS graphics screens are pretty bad. The current Apple II version, 1.22 (from 1989), could use an upgrade. To get the software, contact:

America Online
8619 Westwood Center Dr.
Vienna, VA 22182-2285
(800)827-6364

Continues on page 12

CompuServe

CompuServe is a service of H & R Block. It's monstrously huge; you'll never see the end of it. Its

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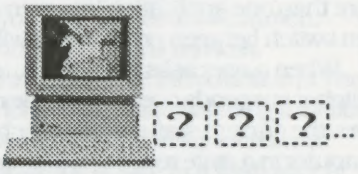

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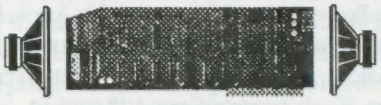
Version 1.1 Available Late March, 1993

Crank It Up!



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More Great Products...

We at ECON are continuosly working on great new products for the Apple IIgs. In fact, during the course of 1993 we will be adding no less than 12 new hardware and software products to our product line. But we want to do more! The IIgs has a potential that has just barely been scratched. If you are working on a great new software product, or have a great idea for one, let us know. We are anxious to bring as much great software to the IIgs as possible!

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99 North Central Avenue - Suite B
Oviedo, Florida 32765
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Mon-Fri, 10:00 AM - 6 PM EST
GEnie: ECON AOL: ECON

Visa, Mastercard, COD, Pre-paid check and school PO's accepted. All orders shipped UPS Ground. UPS 3-Day, 2nd day, overnight, Fed-Ex and Airborne Express available upon request.

MAXIMUM OVERDRIVE

The GS/OS MultiFinder Invasion

SEVERAL NEW products have surfaced lately promising improved productivity and system functionality by providing GS/OS users features similar to the Macintosh MultiFinder. We'll examine a range of these utilities and explain what they do, how they're different and why they promise improvements in speed.

The programs and utilities referred to in this article are best described as either quit utilities or application switchers, and each gets a similar job done in different ways. Why the sudden appearance of so many utilities? Actually, although several new switching utilities have recently appeared, switching is not entirely new to the Apple II world. First, lets look at the history of switching altogether.

A Welcome Environment Appears

When the Macintosh appeared, it introduced the concept of a shared system software environment.. All programs used the same software tools (that make up the Mac System Software) to save and open files, print, draw on the screen and work with windows.

In the Apple II world, which reflected many other systems of the time, programs did all of the work themselves. Each program did things in the way that seemed best at the time to the programmer who wrote them. And programs were generally designed to be run one at a time.

The Mac environment also differed in that programmers were asked to follow strict rules concerning the use of the built in system software tools. Some programmers felt that the rules were too confining. Fortunately for Apple, most of the people that chose to buy a Mac wanted programs to work according to Apple's rules, so programmers that refused found themselves without much of a market.

Programs on the Mac were still running one at a time, but the organized rules each program adhered to offered a simple way of allowing more than one program to run at once. The release of the program Switcher allowed early Macs to load more than one application into memory at once. Users could then switch between programs at will.

When a user asks to switch to another application, Switcher suspends operation of the running application and saves the current status of the machine. It then puts the computer in a state ready to run the chosen program and tells the system to start executing the new application. The whole process takes place in a second.

To return to the previous application, Switcher stops the current app and restores the machine to its previous state. It then reactivates the suspended program to start where it last left off. As long as a program follows the rules, it doesn't need to do anything special to participate in the switch; that is, it doesn't necessarily need be "Switcher aware" to work correctly in the Switcher environment.

A Switcher for the II

A similar program was written soon after the introduction of the Apple IIGS. SoftSwitch, produced by Roger Wagner Publishing, allows more than one 8-bit Apple II program to be loaded into the IIGS at once. It used the bigger memory address space of the IIGS to store the suspended programs so that each could be called up immediately and run. Unlike storing the programs in a RAM disk, the programs were stored as loaded instructions, not as files on a disk, allowing much faster operation. SoftSwitch couldn't perform the same feat for 16-bit programs, however, because they were already making use of the extra memory. And Apple didn't plan software switching into the IIGS operating system.

A New Step for the Macintosh

Apple next released MultiFinder. This new version of the Finder also allowed more than one program to be loaded in at once. The difference was that other programs loaded into memory weren't comatose. Each was apportioned a part of the system's resources to use. The Macintosh MultiFinder really works by switching between each program very quickly, allowing each program in turn to perform a task.

> The Macintosh's MultiFinder works by switching between programs very quickly, allowing each program in turn to perform a task.

Unlike with Switcher, programs operating under the MultiFinder's cooperative multitasking system had to be partially aware of what was going on to take full advantage of the new operation. And more importantly, the system software itself had to undergo major structural changes to allow for this new type of operation.

QuickDraw routines, for example, have to work with commands coming from several different programs. Each program is running in separate, overlapping windows. Compatibility with MultiFinder requires that programs use the supplied tools. If a program, for example, tries to do its own screen draws, it could cause major system problems when QuickDraw tries to draw other application's windows over the top.

Ignoring system tools was not a big problem when the application had full reign of the system and all of its resources. However, in a shared environment, applications had to follow the rules and work with the system to get along. Programs that did what they were supposed to shouldn't need modification to simply run under MultiFinder. To support extended features of a multi-program environment, such as interprocess communication (allowing programs to talk with each other), additional modifications are necessary.

Back to the Apple II

While SoftSwitch allowed the IIGS to run 8-bit Apple II software in a switching environment, the IIGS did not have any provisions for a switching or multitasking operation built into its system software. Each program was still getting—and expecting to get—total access to system resources.

Most applications were breaking the rules and ignoring the system tools to squeeze performance out of the sluggish IIGS, partially because Apple wasn't providing very good tools. In addition, programmers working on the IIGS weren't as responsive to Apple's insistence that they follow the Mac-like rules because, after all, many of the people paying for the IIGS were experienced Apple II users, and didn't care if the IIGS acted as orderly and consistently as the Macintosh.

By the release of IIGS System Software release 4, which

was the introduction of GS/OS, there were few programs that followed the rules. Music Studio had menu bars that looked like they had trotted in from Amiga territory. PaintWorks Gold apportioned itself memory like an electronic Hitler, ignoring the Memory Manager and grabbing the memory it wanted. The Music Construction set even lacked a standard quit command, forcing user to simply turn off the machine or reset after use. Many programs bypassed the IIGS's built-in Quick Draw II to do their own direct screen writes, a definite Apple no-no.

But the introduction of GS/OS helped. By providing a real 16-bit operating system for the IIGS, Apple clued to programmers that it was really there to help. Previously, ProDOS 16 had been supplied. P16 was the original 8-bit ProDOS with modifications to allow programs use of the IIGS's larger memory space and other basic functions.

New Tricks With GS/OS

The introduction of GS/OS brought the Apple II into the world of the organized operations of a modern computer system. It features modularity, a documented driver interface and generic file system. Features that make GS/OS infinitely expandable and provide easy access to all types of new devices and modifications—like quit utilites and switchers.

GS/OS also redefined the way programs should handle a quit operation. When an application quits, it can tell the system if it wants a specific application to be launched next, or if it wants to be restarted after the next application quits.

The Finder does this. When you double click on an application, the Finder quits itself and tells the system to launch the selected program. It also puts itself on the 'quit return stack', so that when you quit from the launched program, the Finder is restarted.

Quit Utilities

Several utilities are available that allow the user to interrupt the standard quit routine. TransProg III, available from Seven Hills Software, as well as RunQ and Quit To, both shareware, step in and give you the ability to choose the next program to be launched.

GS/OS brought the Apple II into the world of the modern computer system, with access to all types of new devices and modifications —like quit utilities and switchers.

TP III allows users to specify if the current application should be put on the quit return stack (so it can be restarted after the next is quit) and provides a memory purging utility allows you to clean up memory before launching into the next program. Memory purging is convenient for users with one megabyte computers using sloppy RAM hogs like AWGS. If a program runs itself out of memory, simply tell it to purge and quit to itself. TP III cleans up memory and restarts the program.

RunQ is shareware from Marcel Egloff. As the first GS/OS switcher available, RunQ was designed as a system extension that offered switching via a pull down menu on the right end of the menu bar. The program was based on OnCue, a commercial switcher for the Macintosh. The documentation we were able to find on RunQ was unfortunately garbaged. We salvaged the following address, which may be somewhat corrupted:

Marcel Egloff (at CIS 100016,120)
Im Roggenacher 9, I
8306 Bruettisellen, Switzerland

Quit To is a shareware Classic Desk Accessory. As such, it's available from any program, P8 or GS/OS. Quit To is the only switcher for use with non desktop programs, so if you work at all with ProDOS 8, get Quit To. The current version is 2.02. It's available from online services and is in most user groups' libraries. Quit To's developer can be reached at:

Karl Bunker
59 Parkman Street
Brookline, MA 03146

Application Switchers

Quit utilities are useful in providing access between programs. For example, you can download a file using AppleWorks GS's communication module, quit to ShrinkIt and quickly return to read the documentation. But while quit utilities can prevent unnecessary trips through the Finder, switcher utilities help save even more time.

Procyon's SwitchIt! is an application similar to the original Switcher on the Mac. It allows users to set up which applications you want to use. SwitchIt! then loads the applications into memory and allows you to suspend and switch programs in a second. Programs in memory can be switched between with a pull down menu located on the right edge of the menu bar.

Several New Desk Accessories are provided with SwitchIt! to allow best use of the switching environment: Memory Bar, by David Lyons, displays how much RAM space is left; Clip It is tool that allows you to select and copy to the clipboard anything on screen; Scrap Master allows several clippings to be separately stored for copying and pasting to the clipboard.

Ex-Beagle Brothers brain Alan Byrd began work on MultiLaunch, a Control Panel Device that performs a similar function. Unfortunately, the switching Cdev is still in beta development. The interface used by Byrd is very smart, displaying a pie chart of available memory and how much each program is using. If you'd like to see MultiLaunch, version 0.1b is available from some online services.

Seven Hills recently announced the introduction of The Manager, a utility that performs a similar switching function but attempts to allow multiple applications on screen at once. Other switchers redraw the screen in a flash after a switch, so between switches, the computer's look and feel is the same. The Manager differs in that, when a new application is launched, it shares the desktop with already operating programs. The value of this difference is that programs operate in a more integrated fashion, like individual AWGS modules. Cut and paste operations should be simpler.

Current IIGS applications are not multitask-aware, so while most programs should be comparable with The Manager, they will not multitask like Macintosh programs under MultiFinder. But The Manager does provide a well suited environment for background utilities. These can transparently steal processor time to perform background functions under most any operating program.

A spooling port driver, a hard disk backup utility or a telecommunications transfer program could sit in background windows, stealing a few cycles from the processor to print, save your files or make file transfers while you work.

Because none of these functions take the processor's full attention, they can be performed while you work with little loss in performance.

The principle of background operations is not unique to The Manager; Seven Hill's own Express does background printing for any application without any type of switcher. The selling point of The Manager is that these tasks could be done in on screen windows. A competitor argued that the IIGS's small screen makes the ability to view more than one application on screen a point of little value.

Because Passport House has not yet received real, working copies of either Procyon's SwitchIt! or Seven Hills's The Manager, we can not compare the two. Both should be good news for Apple II users with a lot of RAM they want to put to use. And both will soon appear in Test Drive. We're also interested in Byrd's MultiLaunch. Perhaps WestCode Software, under which Byrd has done other work (Pointless, InWords), will get into the switcher market as well.

Do You GNO/ME?

Earlier, we referred to the Macintosh MultiFinder as multitasking. Although it and similar environments (Microsoft Windows, OS/2) are referred to a multitasking, they are not true multitasking environments, merely highly organized and blazing fast application switchers.

Procyon supports a multitasking shell of this variety for the IIGS, called GNO/ME. It's an implementation of UNIX, a multitasking, multiuser operating system used in business and universities. Apple II cofounder Steve Job's NeXT computer is based in a flavor of UNIX.

GNO/ME switches between applications at sixty times a second, allowing the apparent multitasking found in MultiFinder. Currently, GNO/ME allows for only one IIGS desktop program in memory at once, along with any number of text based applications. This is apparently a limitation of QuickDraw II. Like the Macintosh, the IIGS would require extensive system software modifications to allow for a replica of the Mac's MultiFinder look and feel.

Don't expect Apple to do reinvent the IIGS toolbox. Don't expect anyone. Without the hardware to perform better graphics, building a 'programs in multiple windows' environment would be a waste of time with the IIGS's small desktop. Simple program switchers provide the majority of that functionality anyway, without cluttering up the screen and using as much memory.

Actually, Bill Heineman has been writing a new toolbox. The routines built into his Avatar should sport the necessary capabilities to run an UltraFinder. Under Avatar, a system like GNO/ME could afford Apple II a true multitasking environment, with multitasking designed in from the ground up. And paired with a display large enough to be really useful in a multitasking environment.

The Bottom Line

Switchers and quit utilities perform a welcome function: they save time. If you find yourself regularly going between applications, stop! Look into investing in one of theses new utilities on the market.

If you can't find any of the publicly available programs mentioned in this article, don't despair. We've put together a disk of the shareware and freeware mentioned, plus the beta MultiLanch, a demo of SwitchIt! and some other useful utilities. The "March 1993" disk is available for $5 by writing to us at our address on page two. Specific instructions are included on using beta and shareware work.

THE WAREHOUSE

WE OFTEN find ourselves with stuff we don't know what to do with. Rummage sale type stuff, as in products we bought to review, things we've pick up here and there and some stuff we don't even remember getting. We thought it would be a good idea to advertise these things so you, our readers, could put them to use and we could get some space back. If you're interested in any of this, contact us with info on page two.

Star NX-1020 rainbow printer.

A fast, color, dot matrix printer with parallel interface that translates ImageWriter code, so your computer thinks it's talking to an ImageWriter II. Works with multiple path tractor fed or single sheet paper. We've got a color and five or so black ribbons and a thousand tractor labels (Avery 4145). Everything in really new shape. Everything for $245.

Apple Scribe color printer.

Apple built this printer to match the //c. It prints shiny color and black blacks but is not at all fast. Uses single sheet or form feed paper, any kind but good quality stuff works best. It has original //c cable, but can work with any II, as it is ImageWriter II compatible. With various ribbons of unknown age, $165.

Hayes SmartModem 1200.

This thing looks like it survived a war but still works without a hitch. In 1983 it was $800. Today, $65.

Apple's IIGS 1 MB memory expansion card.

This card is populated with the $240 of RAM mentioned in Dan's opinion piece (a collectors item!). Would be a good thing for a IIGS ROM 3 user who wants a cheap 2 meg system. Deflated to $65.

"Getting Online" continues...

also monstrously expensive, at least more so than the others. You don't need special software. If you buy a new modem, it's likely you'll get an offer for CIS thrown it. For additional information, contact:

CompuServe
P.O. Box 20212
5000 Arlington Centre Blvd.
Columbus, OH 43220
(800)848-8990

Delphi

Delphi offers two payment plans that make it the least expensive service available. You can join and get five hours of non-prime time for just $5. Using any telecommunications program, dial (800) 365-4636. Press return once or twice and at the password prompt, enter CPT55 For more information, contact:

General Videotex Corporation
1030 Massachusetts Avenue
Cambridge, MA 02138
(800)695-4005

GEnie

GEnie is a service of General Electric. You can use GEnie from any terminal program. Use your modem to dial (800)638-8369. When you connect, immediately type "HHH" (three capital H). At the " U# " prompt, type SIGNUP and hit return. You'll need a credit card or checking account information (direct debit in U.S. only) handy. GEnie's Apple II area is managed by Resource Central people.

GEnie
P.O. Box 6403
Rockville, MD 20850-1785
(800)638-9636

NEW PRODUCTS

Apple II Educational Products
Educational Resources
1550 Executive Drive
Elgin, IL 60123
(800)624-2926

Educational Resources' Spring 1993 catalog is now available. The catalog lists several new Apple II products, including: "The Great Space Race" from Hartley; "Calendar Fun," "Science Corner" and "Money and Time Adventures" from SVE; "The Math Series," available in three levels of difficulty, from Ellen Nelson Learning Library.

Also, "Wild West Math," "Marty's Family Reader" and "Marty's Reading Workout," from Micrograms; new sets in the Creative Writing and Big Book Maker series from Toucan (formerly Pelican Software); new multi-disk sets of clip art in a variety of Apple II and IIGS formats from Graphics Gallery; and "The Lost Tribe," a leadership strategy game for the IIGS from Lawrence.

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Quickie 3.0
Vitesse Inc.
13909 Amar Road, Suite 2
La Puenta, CA 91746
(800)777-7344

This software update to Vitesse's Quickie hand-held scanner system for the IIGS produces better quality scans using the same hardware. The new software is available for $19.95 plus $4 shipping and handling. Don't bother digging up proof of purchase; Vitesse doesn't require any because their interface card is needed to use the software. This update was released last year, but we're calling it new product for anyone who doesn't yet know about it.

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ORCA/C 2.0
The Byte Works, Inc.
4700 Irving Blvd. NW, Suite 207
Albuquerque, NM 87114
(505)595-8183

The Byte Works recently provided Passport House with additional information on this product. The ORCA/C 2.0 package is designed for speed, toolbox programming and friendliness with new features of GS/OS System 6.0. Version 2.0 represents the first major revision of ORCA/C since its release.

Included in the package are two compilers: a compact one for users with less memory and a full size compiler designed for high speed compiling and efficient code optimization. Op timization means smaller, faster programs. Based on reports from beta testers, there is a typical improvement of about 15% in both size and speed.

In addition, the new compiler saves some of the results of header compiling in special files that are read the next time the program is compiled. Programs that use the toolbox in particular use a lot if header files, so they can be recompiled about twice as fast as with ORCA/C 1.3.

The new ORCA/C also boasts better memory management. It uses smaller work buffers and spools large programs to disk. Along with the smaller compiler, current users of version 1.3 should be able to do about the same amount of work in 2.0 without having to get more memory.

Prizm, the included desktop environment, has also been overhauled. Prizm 2.0 makes better use of new system software features. Resources are used throughout, so menus, dialogs and error strings can all be easily modified. The new Prizm also makes use of newer controls and uses both the Standard File, for file input/output, and Print Manager, for printing. This means that users can use any FST supported file system and print to any printer they have a driver for.

Prism 2.0's quick scrolling editor now makes correct use tabs and the debugger has also been revised. It can automatically enter scalars for you and display the contents of variety of structures.

The ORCA/M shell has also been revised to make proper use of FSTs. The provided text-based editor allows up to ten source files to be loaded at once and supports files as large as memory permits. It also supports tabs, as well as providing better string searches and uses soft carriage returns.

Other features of the new ORCA/C: Apple utilities, including Rez and Derez for creating and decompiling resources and sample code: shells designed to assist in writing HyperStudio NBAs, HyperCard IIGS XCMDs and Inits; prototype tool header files and more.

The five disk set making up ORCA/C 2.0 is regularly priced at $150, but The Byte Works is offering a special deal of $75 through March, 1993. Package deals are also available: ORCA/C 2.0 and the Learn to Program in C package for $95 (regularly $200), ORCA/C and the book "Toolbox Programming in C" for $125 (regularly $225) or all three: the compiler package, the course in C and the toolbox book, for $160 (regularly $275).

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The Manager
Seven Hills Software
2310 Oxford Road
Tallahassee, FL 32304
(800)327-3836

The Manager is a IIGS program switcher that allows for multiple applications to share the same desktop. Click on a program's visible window and the program is activated. With multiple windows on screen, cut and paste operations between applications should be a snap. The new utility allows GS/OS users to enjoy a measure of the Macintosh's MultiFinder functionality, even allowing multitasking with some programs.

The Manager is the work of a two year collaboration between Seven Hills and BrainStorm Software, the creators of Kangaroo and TransProg III. It requires at least 2 Megabytes of RAM, although 4 MB and a fast hard drive are recommended. The Manager retails for $69.95.

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Shareware/demo/beta disk

We've put together a disk of the publicly-available quit utilities & switchers mentioned in Maximum Overdrive (plus some other stuff). If you don't have a modem send us $5 for the disk. Our address appears on page 2.

LATE NEWS

·Zip Technologies has a new phone number. The manufacturer of Apple II accelerators and other peripherals can now be contacted at (213)568-2002.

·Balloons Software, a developer of educational software, is offering schools in nine states and one Canadian province free access to their software. The program, called "Project Equity," is part of an outreach effort to schools in areas with unequal access to educational technology.

Schools and public libraries in West Virginia, Oklahoma, Arkansas, Mississippi, South Carolina, and Maine may obtain free site licenses to Number Squares and Big Text Machine, educational programs from Balloons Software.

Interested schools may request information by sending a request on school letterhead with $5 to cover materials and postage. Requests should include the name of the school's computer coordinator, the number of students who attend the school and the number of Apple II computers on site.

The offer has also been extended to schools and libraries in California, Iowa, North Carolina and British Columbia, because of their active use of computers in education. Project Equity offer has no deadline and will remain open indefinitely.

Balloons Software has previously granted free site licenses of its software to the Playing to Win community computer center in Harlem, New York and the Disabled Children's Computer Group in Berkeley, California. The company has also supported inner-city computer projects in Washington, D.C. For more information, contact Phil Shapiro at (202) 244-2223 or write:

Balloons Software
5201 Chevy Chase Parkway, NW
Washington, DC 20015-1747

·The Byte Works is now working to produce ORCA/Pascal 2.0. In addition, they are working with Australian Peter Easdown to develop a Modula 2 compiler for the IIGS. Their recent release of ORCA/C appears in this issues' New Products.

·Apple Expo West is slated to be held April 23-25, 1993 at Brooks Hall in San Francisco. The event is held by Event Specialists in association with the Bay Area Apple II User Group and Bay Area Macintosh Users Group. Many new product releases are promised; 12,000 persons expected to attend.

Keynote speakers include Peter Kelman, Vice President of Scholastic, Inc., and Roger Wagner, of Roger Wagner Publishing. For more information contact:

Event Specialists
17 Lilac Road
Sharon, MA 02067
(800)955-6630

·A2Pro, the Apple II developers roundtable on the Genie electronic information service, is offering a series of "A2U" courses on understanding and using Apple IIGS resources. Courses start off for beginners with a focus on understanding resources; what it means for a file to have a resource fork and why ProDOS 8 doesn't like resource forks. Progressive lessons will deal with the Resource Manager, and how programmers use it to create and retrieve resources. More advanced courses will follow this spring for intermediate programmers, including instruction on how to use tools like Rez and Foundation and how to manage multiple resource files open at once.

Instructor of the A2U courses is Marc Wolfgram of Lunar Productions. Wolfgram is an expert in using IIGS resources, having had a hand in the production of resource editors Genesys and Foundation.

Information on accessing GEnie can be found on page 8 of this issue. Once connected, you can get to the A2Pro roundtable by type "A2PRO" at any GEnie prompt. The course discussion is held A2Pro's bulletin board. Past courses can be found in category 22 of the bulletin board. Course lessons are available in A2Pro's Library 16.

·Bug Watch: programs that modify the display of IIGS menu bars appear to be causing problems when used together. WestCode Software's Pointless 2.x, which allows the use of type styles like bold or italics in the Font menu to indicate whether a font is a TrueType outline or a standard bitmap, and Seven Hill's Kangaroo, which inserts additional shortcut items in some menus, have been cited as possible problems.

A IIGS system we use with both utilities installed has on several occasions performed some bizarre results. Kangaroo 1.3 has placed errant shortcut menu items in inapplicable areas and has several times exploded our "Statistics..." menu item in AWGS' Word Processor module into a cloud of colored screen garbage. No noticeable problems were observed after we (reluctantly) turned off the function.

Our copy of Pointless 2.0 has not been set to change menu item styles; however, some very strange results have appeared after several hours of operation using Pointless extensively. Selected text has been replaced by an odd blue and white grid. The problem was only cosmetic, and scrolling through the document (to redraw the screen) solved the problem. Immediately afterwards, a line of text suddenly reappeared in a very large, purple, outline-italic font and the system crashed. We are yet unable to tell if this was related to Pointless, Kangaroo or a system bug. Both companies are aware of incompatibility reports and are apparently working to find the cause.

If you get errant results using any piece of software, write the company and tell them. Include your registration number, a clear description of the problem and a list of the hardware and software you use with the product. Then contact us, so that we can warn other users of potential problems.

·Apple just released their first PowerBook and compact Mac that do color (the PB 165c and Color Classic), an LC III (don't tell Eran), a redesigned Quandra (800) sporting fewer chips via VLSI and a new model line to replace the Mac II: the Macintosh Centris.

The Passport House Report

Branch Network to Improve Foreign Delivery

IN OUR growth as a publication, we've picked up readers in other countries. We're glad we can give such ones another view on the Apple II arena.

Because of the additional cost of postage, users outside the United States are less likely to get mailings and other information from developers. As an example, although we can bulk mail multiple issues of our publication to U.S. readers for around a quarter, each one we send overseas costs over a dollar and a half. That's a major difference.

Our overseas rates don't fully cover the extra postage, but we'd rather reach these new readers. They're isolated. And getting news out is our job. Unfortunately, sending material overseas not only costs more, but takes considerably longer. One of our basic goals is timely news, so we consider delivery of even a week later to be a problem.

Our Branch Program

In order to better reach as many foreign readers as possible, we've set up a new program. We're setting up branch offices in any countries or regional areas with at least 50 subscribers.

Once a branch office is established, we can express mail multiple copies at once to a person designated branch coordinator.

Our regular base office will still do the work of managing the subscribers, so individual copies in the package will be addressed and ready to send. All a coordinator must do is affix postage and post. We reimburse the branch's costs in local postage.

For our foreign readers in areas where branches can be set up, the new system means faster delivery and a lower subscription price, as areas serviced by a branch can subscribe at regular domestic rates, a savings of ten dollars.

For us, it means we can cut unnecessary costs and streamline our operation. In addition, with a branch coordinator, we'll be in a better position to receive information on the development going on in foreign areas. We'd like to be seen as journalists of ALL Apple II development.

Hopefully, we'll also be able to aid foreign developers. In addition to providing them with the information we publish, we'd like to be in a position to provide these ones with the latest development tools and team their efforts with the work of developers in this country.

Getting More Information

To start a full branch, at least fifty subscribers should be collected for the area. Passport House is also working on developing mini-branches in areas with fewer potential subscribers.

If you are a foreign reader, or know of users or developers in another country, we'd like you to contact us at our address on page two.

Coming In Future Issues

The Great Disk Drive
—pairing new disk drives with GS/OS.

We've mentioned before the extensibility of GS/OS. Now we'll examine it in great depth. The report includes: how different drives (magnetic floppies, flopticals, CD-ROM, optical-magnetic, etc.) work and what GS/OS needs to be able to use the different drives; how Apple's SmartPort and the SCSI or IDE interfaces work; how you can (and why you need to) backup and optimize huge volumes.

Our roundup should tell you anything you ever wanted to know about storage media devices, and perhaps a little more.

Quick Change Artists

SwitchIt! and The Manager promise a MultiFinder on your IIGS. How well does each do? And how compatible are they?

The Hypermedia blitz

The big buzz word. How useful are hypermedia applications? We'll take a comparative look at several packages, including TutorTech, HyperCard IIGS, HyperStudio and Nexus.

No Longer Bound to the ImageWriter II.

How to make use of inexpensive and high-quality printers in both GS/OS and ProDOS environments. Put a new pin printer, jet ink or Laser/LCD printer next to your Apple II and improve your type.

Searching for More

Where can you find news? We examine Apple II sources of news: Quality's new II Alive, InCider/A+, Resource Central publications and more. A report on what you can expect before you pay dues.

Headaches and Eye Strain

Are you getting cooked by your monitor? Ways you can lessen the assault. Plus, replacement monitors you can use with you Apple II.

The Top Art Program

Ww put paint applications to the test to find number one.

Using Video

Pair Apple's Video Overlay Card with access to laserdiscs and CD-ROM to create a new breed of information display. How you can make the connection.

In Addition:

Regular features: Late News, New Products, (lot's of) Industry People and more!

ERAN PAIGE

The Taboo Version Number

WHY WAS there never an ImageWriter III or Macintosh III? Apple's disastrous failure of its 1980 Apple /// resulted in "III" becoming a taboo version number. Apple hasn't used it since. Was the Apple /// really that bad?

Some History

Shortly before the Apple /// release in 1980, Apple found itself in a quandary. The original Apple II was proving itself to be a phenomenal success, but Apple was apparently sceptical of its future. They had long term plans in the Lisa, a new computer sporting a graphic interface patterned after work done at the Palo Alto Research Center, an experimental research station operated by Xerox. What they wanted was a stop gap measure to allow them a solid chunk of the business computer market right at the time.

What they did is produce the Apple ///. It was a hopeful successor to the still wildly successful Apple II line, but it suffered from an unrealistic drawing-board-to-finished-product schedule of less than a year.

Unfortunately, in their rush to produce the ///, production suffered in the area of quality control. Many ///s immediately choked because a faulty motherboard chip failure or electrical shorts caused by ill-placed screws. The serious bugs in the Apple /// design were hastily corrected and the machine was reborn as the Apple ///plus. But the /// could not overcome the bad reputation it had earned.

Apple unceremoniously unplugged the /// and focused efforts on the Lisa. All the while, the Apple II market showed no sign of decline. By 1984, the Apple II existed in new IIe and IIc varieties, and some work on the IIGS had started.

But Apple's first priority was production of a business computer. That goal nearly broke the company. The $10,000 Lisa was simply too expensive to win in the business computer market IBM had defined with the it's PC.

Apple decided to throw its full support behind a cheap version of the Lisa, the Macintosh. Even so, the Macintosh took several years to take hold and actually become profitable. The dollars from the Apple II that had covered Apple's mistakes with the Apple /// and Lisa were now going to be used in financing the growth and future of the company with the Mac.

Apple /// Remnants

The Apple /// wasn't a total loss. The operating system Apple designed for the ///, SOS (for Sophisticated Operating System) was Apple's first hierarchical file system and provided a uniform interface for both block and character devices, sophisticated interrupt handling, memory management, device driver extensibility. All of these features were unduplicated in personal computers.

Its filing system was reused in Apple's design of the Professional Disk Operating System, or ProDOS, for the Apple II. The only difference between a SOS and ProDOS disk is their boot blocks. If you examine Apple's standard file type list, you'll find many SOS file types listed.

Apple's ProFile hard drives provided Apple /// users with 5 and 10 MB drive capacity, huge at the time. The Apple II later made use of ProFile drives. Standard SCSI drives weren't to become common fare for another half decade.

What if the Apple /// had lived?

Speculation as to what Apple's best move could have been is highly irrelevant today. But its a lot of fun. If the Apple /// had been a better computer, perhaps more of us today would be Apple /// users. (There is a good handful of people still using Apple ///s. If you've got one, write us!) The IIGS might have been the ///GS, and much more successful.

Just as likely, however, is the possibility that, with two successful lines (the Apple II and the ///), Apple might have worried less about the success of the Macintosh. Had the Mac become a secondary project, Apple may well have missed out on carving out for itself a special niche in the computing market. Apple might have lived a more drab life as a second Commodore or Atari. Or (gag) another IBM clone maker!

Back to reality now. The number "///" has been entombed with its namesake. Apple even skipped from II to four (Quandra) in the progressive generations of the Macintosh. In fact, the only products we know of that bear the version of Roman numeral three are from Seven Hills Software: TransProg III and GraphicWriter III. They're brave.

A Scrambling Attempt To Rewrite

Okay, okay. Shortly before press time, Apple released a slough of new stuff, including, believe it or not, a Macintosh LC III. I stand behind my basic premise, however. There's an explanation. Technically, they've buried the III part so far down in the name that it doesn't even count. Secondly, the III is a version of Mac LC, not of a major product line (its not the Macintosh /// LC). Thirdly, Apple slyly uses a sans serif III, as in three sticks, not the Apple ///'s delimiting (slanted line) characters.

This is possible, of course, because of the Mac's graphic display. With a text screen you can have Apple][, Apple II+, Apple //e, Apple ///. Graphics computers, on the other hand, often can't do their name right in text. Apple IIGS, for example, just doesn't look quite right in text. That makes a difference. And it reflects Apple's subliminal/Freudian denial thing about the Apple ///. Are you buying this?

Good.

The Passport House Letter
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BULK RATE
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